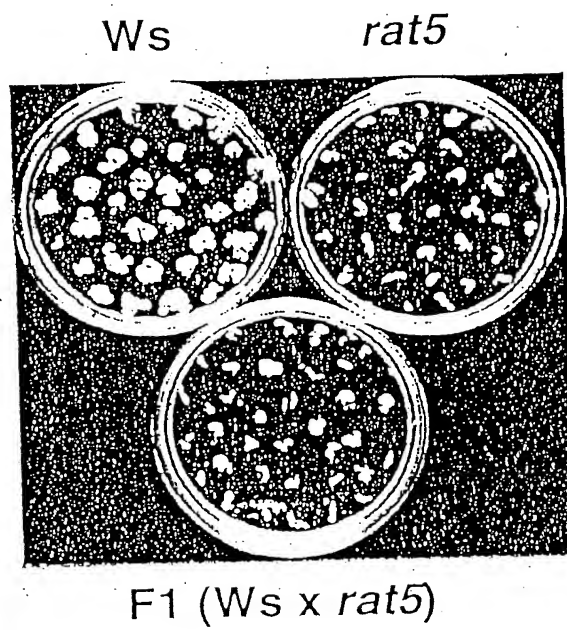*Fig.* 1A

Ws   *rat5*

F1 (Ws x *rat5*)

Fig. 1B

```
TCAAAAGGAAAGACATTAAATTAGAAATTGAAATTTGAAACATGTTGATAGATCATGTCCTTCTTCTCGGTTACCCAGTT      80
TTGCCCTAAAACCTAAAACCAACAGAGACCATCATTCGACCACCACCACATTGACTGGTCTGCCCCAATCTAGCTATGATA     160
TATCTTAATTTCCGTATGACTTGGATCCATAAATATTGAAATAGATTGGTGAACACAATTACTCTTAAACTCTTCT          240
CTTTCATGCATGTCTTTTTCTCACTTTAACATTTTTATATAGTGACATTTTAGTAATCCAACGTTATTATATGATTA         320
GTAATTCATCAAATTTATATAGTGATAAAATTCCACAATGGTTGTTCAATAAAAATATGAACAACACAATAGAATTAGTA      400
AAAGTGACTATGTTAAATCATTTCTTCGCTGGGGTTTGGTGGGCGAGTTCAAACCCATAAGCGGCCCATTTACTTCGT         480
AAACTCAATTCGATTTGTTCAGCGTTCCAAGCCCATATATATTTTCAAGGGCATAAAATAAATTGAGGTTTATATGGA        560
AAATTTGGAAATTCCCTCGTCCAGAAGAAACCAACAAAAAACTCCTTCGATCCGCGTACTCTTATGTCAAATAACTTAA       640
GTAGCCATTCATTAAATTATAATCAACAATCAGATTTCTCTCTGTTAATTTCGTCAAGAAAAAATTGATTTTTTGCGCTCTTTG 720
TGGGTTGTTGTTGTTGAAAATGGCTGGTCGTGGTCGTTCTCGAAAAACTCTTGGATCCGGTGGGCCGGTAAAATACGCCGGTA  800
GCAAAGCCGGTCTTCAATTCCGCGTGGGCCGGTTCTCGAATATTGGCCGCCGAGGTAAAATTACACTCGTCTTTTCTCTTTCCCA 960
GGTGCTCCGGTTTATCTCGTTATTCGTCTGTCTCGTTTGCGTGATCGAATTGTTGTGTAGTTGTTCTCTCTCTGGGGTTCTTCTTACATTTTCCGAATTT 1120
TTCCGTTTCCGATCTTATTCGTCTGACTCTGTTTTGCGTGATGAATTGTTGTTCTCGAATCGTGATCGAATTGTTGGGTTTGTTCT 1200
GACATGCAAAAATTGAATTAGATTCGTTGAATTGAATTGTTGTAGTTGTTCTGTAATTGTTGGGTTTGTTCT 1280
GATTGGTTGATGGTAACGAGATCATATGAAATCGTTGTAGTTTTCTCGCAAGATTCTAAATTTTTTCAATTATGGTAAC 1360
CAATTTGATTTGAGTTGTTAAAGTTCTCAAATTTGAAAGTTGATCATGAATTGTGTTTTGAATTTGTTCAGGTTCT 1440
TGAATTAGCTGGAAACGCAGCAAGAGCAACAAGAAGACACGTATTGTTCCTCGCACGTTGTTCGCGGTCAGAAACG 1520
ATGAGGAGCTAAGCAAGCTTCTTGGAGATGTGACGATTGCTAAGTGCCTAACATGATATAGAACACGTCTCTCTTTGCA 1600
CCTAAGAAGGCTGGTGCTTCAAAGCCTCAGGAGATTGACGTCTTTAACAAGTTGTAAACAATTGACGCTTAGACAACTAATAACAACATTGCGGACGTTTTAATGTACTG 1680
AATT
```

T-DNA   → insertion site

Italics   → Open reading frame

Bold   → Intron

Underline   → T-DNA LB sequence

Fig. 1c

Fig. 2A

Bgl II
LB
pAg7
Bam HI
hpt
Bgl II
Pnos
Sal I
Hind III
Xba I
PH2A
histone H2A
pKM4
Eco RI
RB PAnos
Eco RI
Bgl II

Fig. 2B

Ss/ I
9.0 kb genomic fragment containing RAT5
Ss/ I

Bgl II
LB
pAg7
Bam HI
hpt
Bgl II
Pnos
Hind III
Sal I
Xba I
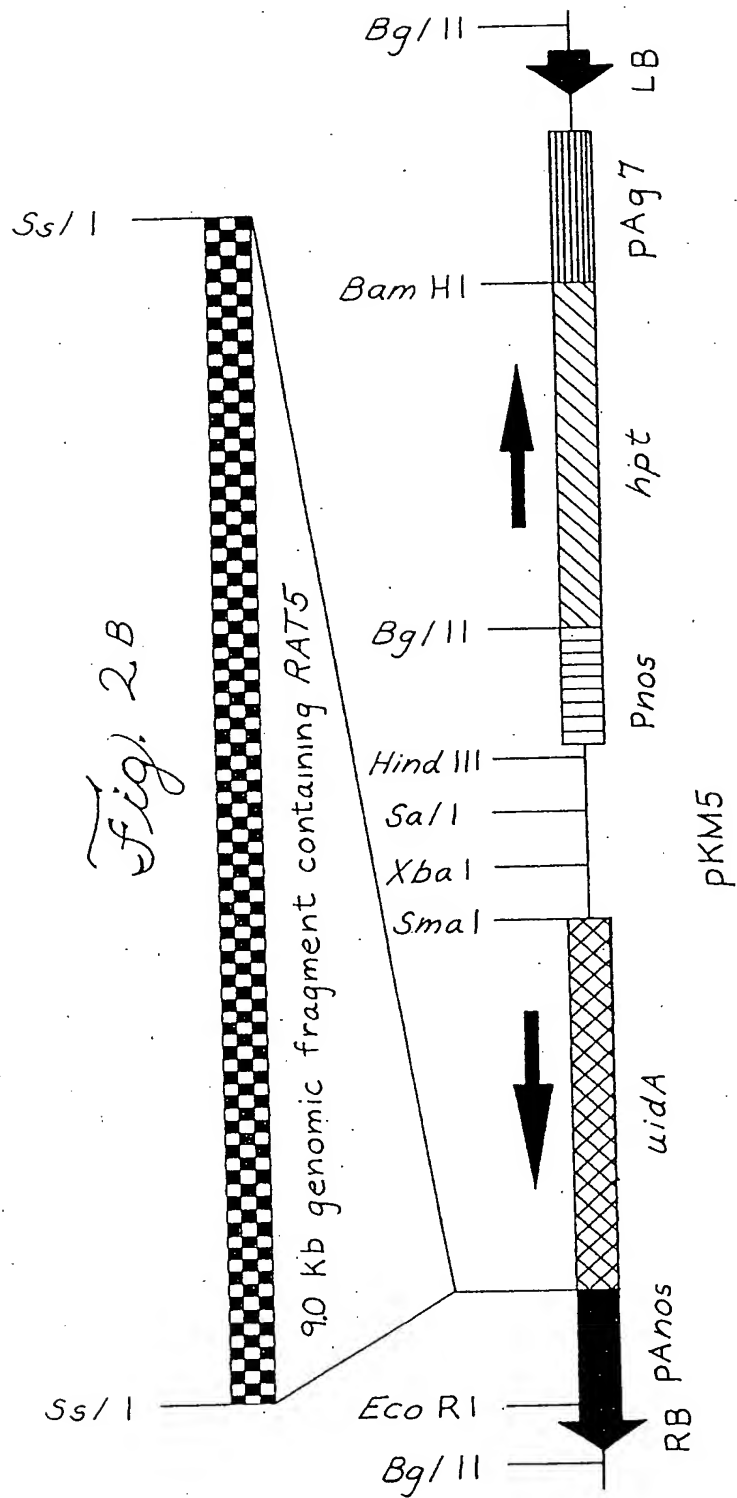Sma I
uidA
pKM5
Eco RI
RB PAnos
Bgl II
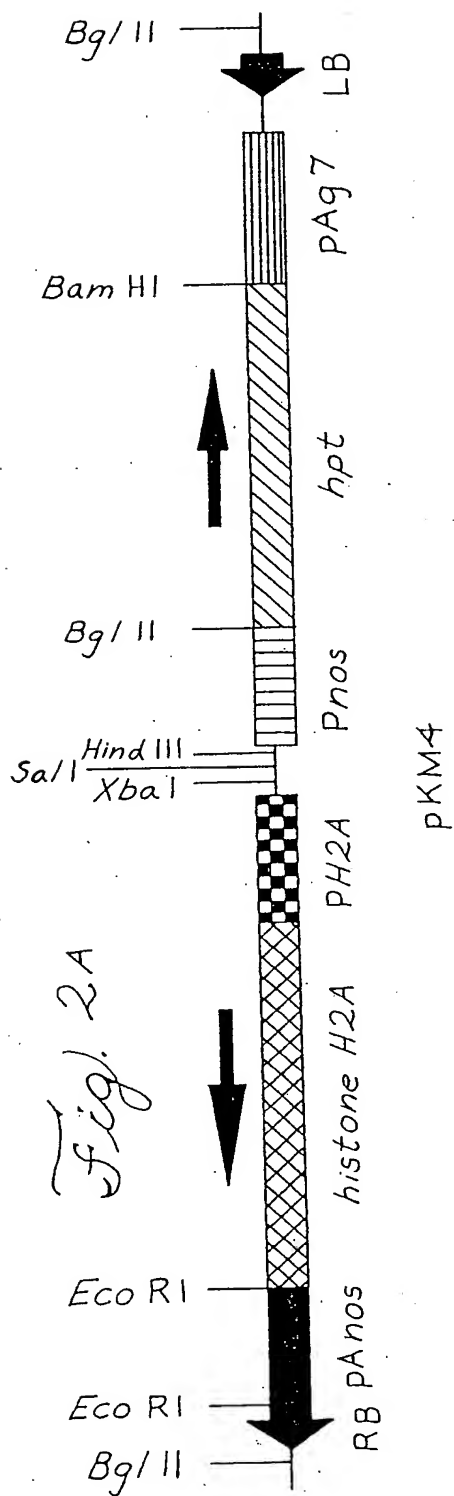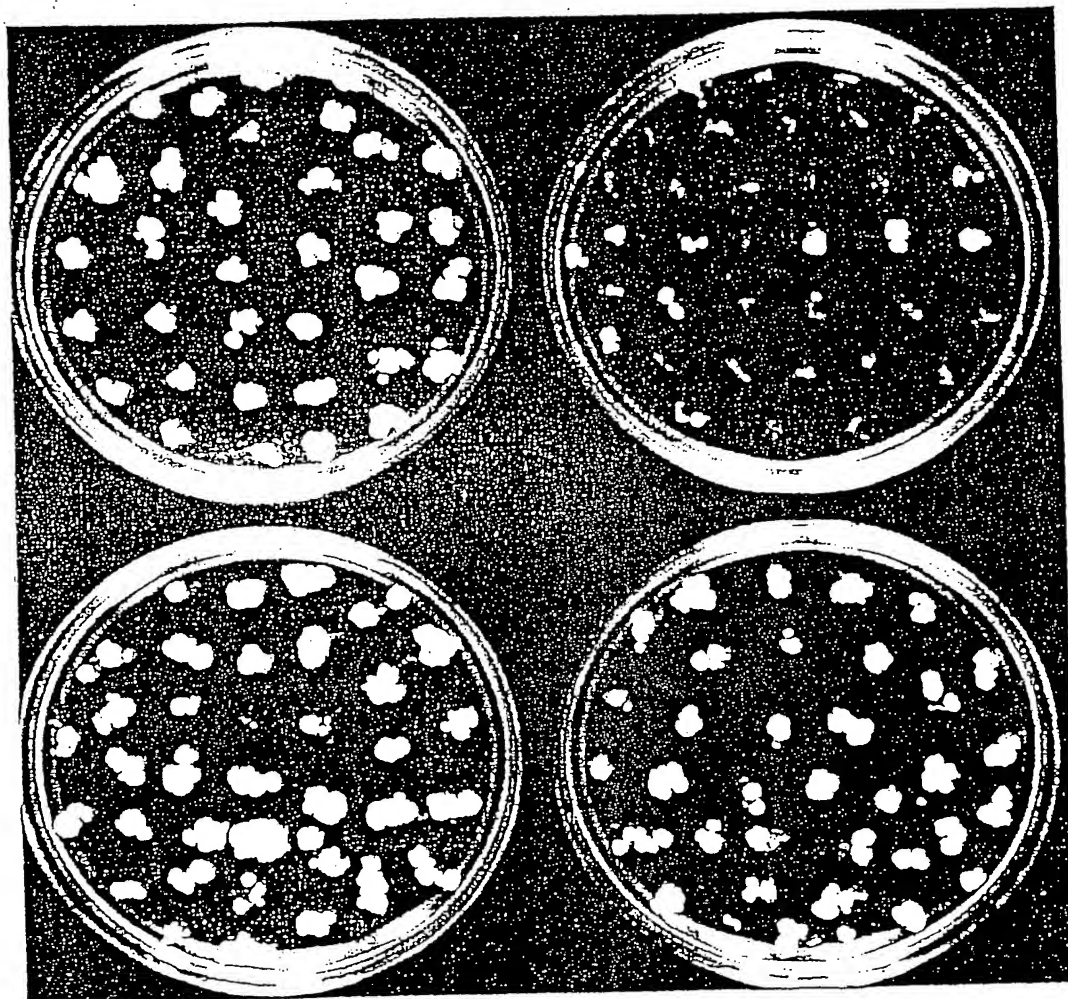
Fig. 2c

Ws   *rat5*

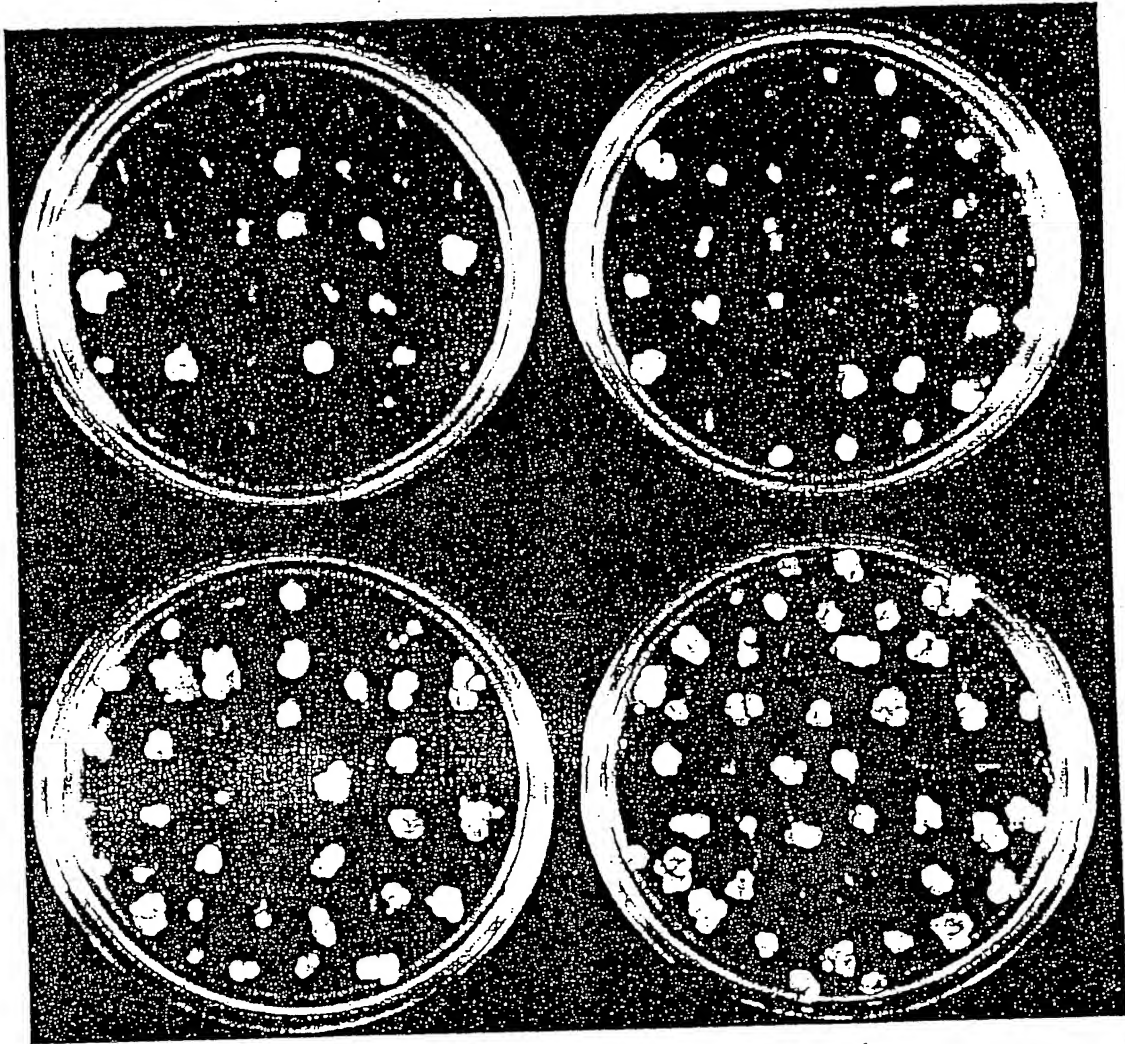Transgenic *rat5* plants expressing
the *RAT5* histone H2A gene

Fig. 2D

Ws   Ws

Transgenic Ws plants overexpressing
the *RAT5* histone H2A gene
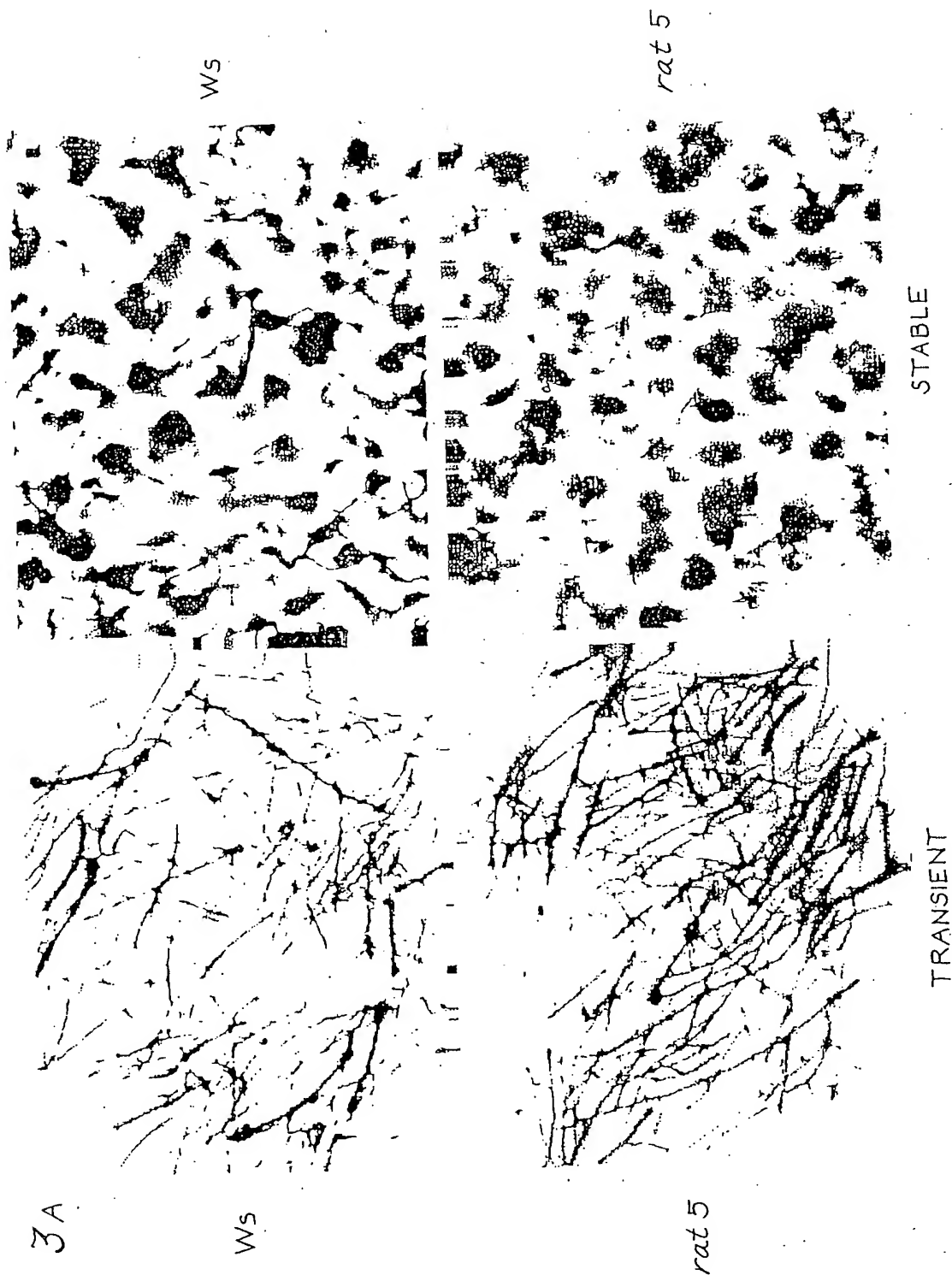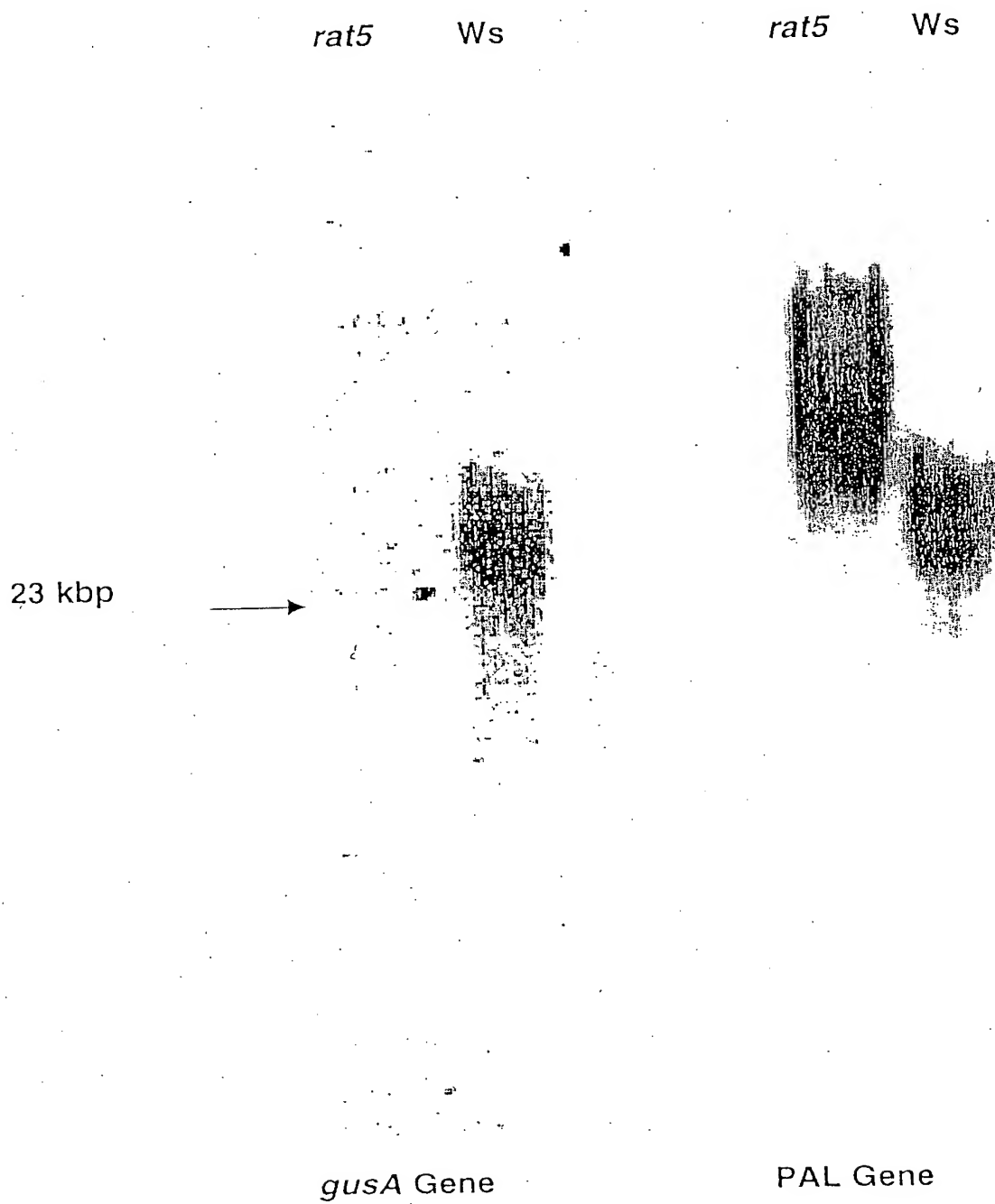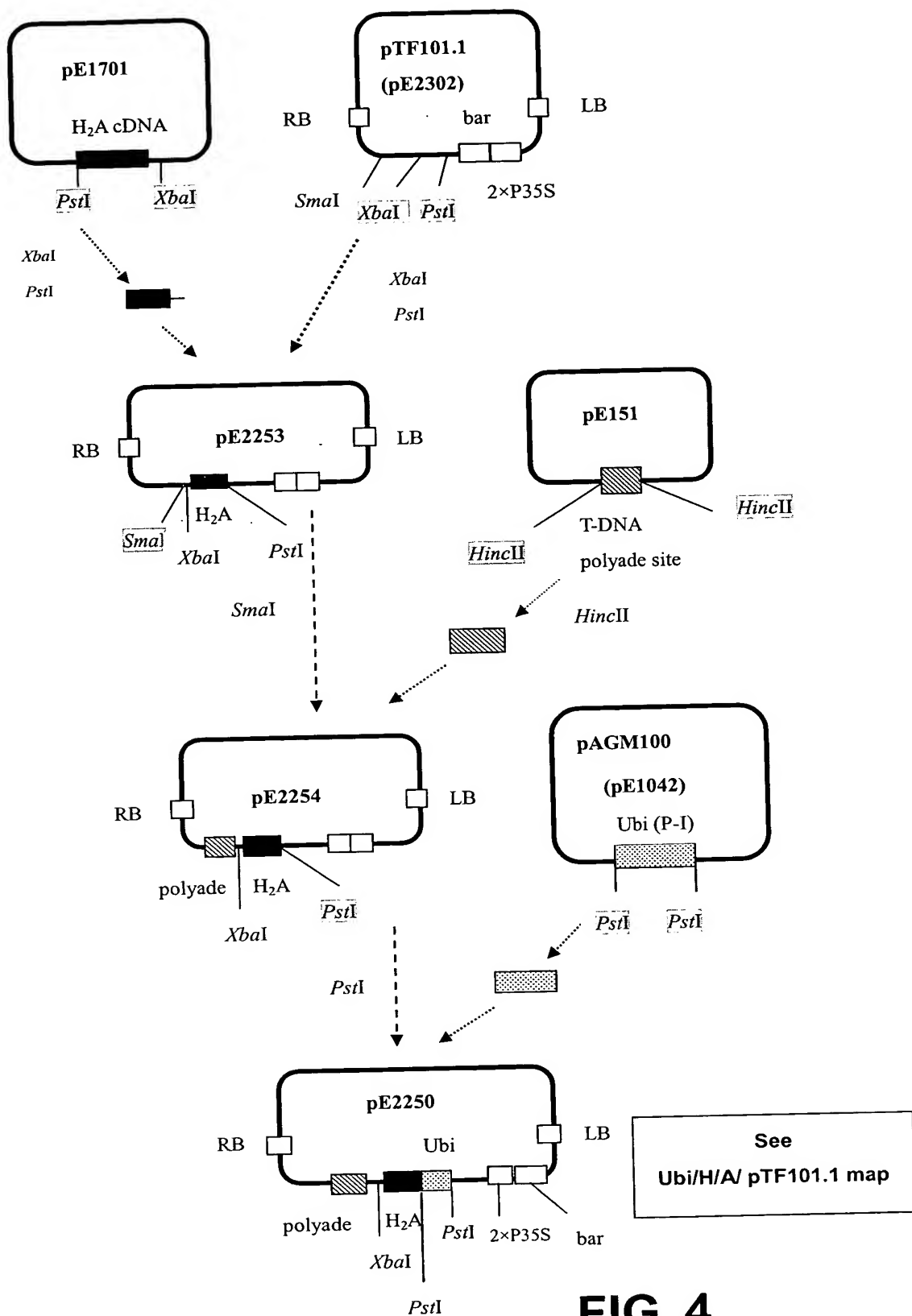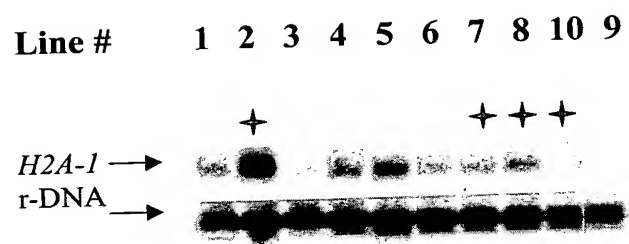
Fig. 3A

TRANSIENT

STABLE

Ws

rat 5

Ws

rat 5

Fig. 3B

rat5　　Ws　　　　　rat5　　Ws

23 kbp ———→

gusA Gene　　　　　　PAL Gene

FIG. 4

Line #　　1　2　3　4　5　6　7　8　10 9

H2A-1 →

r-DNA →

+ maize lines A10 (transgenic for E2250)

FIG. 5

HTA1-C

```
TAATTTCGTC AAGAAAAAAA TTCGATTTTT TTGCGCTCTT TGTGGGTTGT TGTTGTTGAA
AATGGCTGGT CGTGGAAAAA CTCTTGGATC CGGTGGGGCG AAGAAAGCTA CATCTCGGAG
TAGCAAAGCC GGTCTTCAAT TCCCGGTGGG TCGTATCGCT CGTTTCTTAA AAGCCGGTAA
ATACGCCGAA CGTGTTGGTG CCGGTGCTCC GGTTTATCTC GCCGCCGTTC TCGAATATTT
GGCCGCCGAG GTTCTTGAAT TAGCTGGAAA CGCAGCAAGA GACAACAAGA AGACACGTAT
TGTTCCTCGT CACATTCAGC TTGCGGTCAG AAACGATGAG GAGCTAAGCA AGCTTCTTGG
AGATGTGACG ATTGCTAATG GAGGAGTGAT GCCTAACATC CACAATCTCC TTCTCCCTAA
GAAGGCTGGT GCTTCAAAGC CTCAGGAAGA TTAGGTCTTT TAACACAATG ATATAGAACA
CGTCTCTCTT TTGGCTTTAG ATCTAATAAC CTAATAACTA GCTAGATGTT TTCACTTTTT
GTATCTTTGC TTTTTTTAAT TCCTTTAGGG ATTTGTTTCT TTCCGTTTCT GTTTCGACAT
GTTGTTTCTG TTTTTGTGAA TATATGAAAG TATTTTGC
```

HTA2-C

```
GAGAAATTTC TCAGTTACGC TTCATCCTCC TCTAAGAGAT CTTTTTTCTA TCTTGGGTAG
TAGAGAGAAA TGGCGGGTCG GGGAAAACAA CTTGGATCTG GTGCAGCGAA GAAGTCTACT
TCTCGTAGTA GCAAGGCTGG GCTTCAATTC CCTGTTGGTC GTATCGCTCG ATTTTTGAAA
GCCGGTAAGT ACGCCGAGCG TGTTGGTGCC GGAGCTCCGG TCTATCTCGC CGCCGTTCTT
GAATACCTCG CCGCTGAGGT ACTTGAGCTT GCTGGGAACG CAGCGAGAGA CAACAAGAAG
ACCCGTATAG TTCCACGACA CATTCAGCTT GCTGTGAGGA ATGATGAGGA GCTAAGCAAG
TTGCTTGGAG ATGTGACAAT TGCTAATGGA GGAGTGATGC CTAACATCCA CAATCTCCTT
CTCCCCAAGA AGGCTGGTTC ATCTAAGCCT ACTGAAGAAG ATTAGGTTCA TTACGAAGAT
AGGGAAAGCT GGAAACTGGT TGATATCAGA TAATGCTTAG GATTGTTTTT TTTTTCATTT
GCTTTTCCTC TGCAGCAATG GAAGCTGTGT GGTTGTACTA GTTGTTAAGG TTACCTTTGT
TTCACTTTAT GTGAATATAT GAAGAAATTG TTCTATTTC
```

HTA3-C

```
AAATCACTCC ACTCACAAAA TCCTCAGCCA TCTCTAATCA CATTTTACAA TCGCCTCTTC
AAATTTCCCG ATAAACAAAA AATGAGTTCC GGCGCCGGCA GTGGAACAAC TAAAGGTGGC
AGAGGAAAGC CAAAAGCTAC AAAGTCCGTC TCTCGATCTT CTAAAGCTGG TCTTCAATTT
CCCGTTGGAA GAATCGCTAG ATTCCTTAAA GCCGGTAAAT ACGCCGAACG TGTTGGTGCC
GGTGCTCCCG TTTATCTCTC CGCCGTTCTC GAATACCTCG CCGCTGAGGT ATTGGAGCTA
GCTGGAAATG CAGCAAGAGA TAACAAGAAG ACACGTATCG TACCACGGCA CATTCAGCTT
GCAGTGAGGA ACGATGAAGA GCTTAGTAAA CTTCTTGGAA GTGTAACAAT TGCTAATGGA
GGAGTTTTGC CCAACATTCA TCAGACTCTT CTCCCATCAA AGGTTGGAAA GAACAAAGGC
GATATCGGAT CTGCTTCTCA AGAGTTTTAA TTTTATTTTT TAGCTTGTAA CATAGACATG
GCTCTCTGTT CCACAATAGT TTTGGTATTT TCATGTTACT CAAAAACTGT GTTTGCAAAT
CCAGTAATGA ATTCGGTTTG AAGAAGTGAA ATAGTTAAAT TTGATGTGTT GAAATAGCGG
ATTCAATGGC TTCAATACAA GTGCTAATAG GTTTGGCTTT AGCCATGGTT TCTGCAAGTG
AGACTCTTGC TTCTTTGTGA GAATGTAATA ATGAGACAGT GTTGGAAACA GCCCATTTGA
TATGAGCCTC CTTTTCTGAT T
```

FIG. 6(A)

<u>HTA4-C</u>

```
ATGGTGTGCA ACACGAATAT ACTAAAAGAT GTGTCGACGA AGATAAGTGC TTTTGAAAAT
GTTCGGATGA TTATGGTGGA GGGAGAGATG TTTCAAGTGG CTCGTATTCA CAAGCAACTT
AAGAACAGAG TTTCTGCACA TAGTAGTGTT GGTGCGACTG ATGTTGTCTA CATGACTTCA
ATCCTTGAAT ACCTAACTAC AGAGGTTCTT CAGTTGGCCG AAAACACTAG CAAAGATTTA
AAAGTGAAGA GGATAACTCC AAGGCATTTG CAGTTGGCGA TCAGAGGAGA TGAAGAGCTT
GACACACTCA TCAAAGGAAC AATTATTGGA GGAAGTGTGA TCCCTCACAT CCACTAG
```

<u>HTA5-C</u>

```
CATATAGAGA AGAGCAAAAC CCTAAAGCCC ACTCATCTTC TCAATTCCCA GATCATCTAC
AATAGTCATT TCTCTTCGAT TTCTTCAAAC TCTCATCAAA TCGTTTATCT GTTCTAAATT
TCGAAGAAGA CGATGAGTAC AGGCGCAGGA AGCGGAACAA CCAAAGGTGG CAGAGGAAAG
CCAAAGGCCA CCAAATCCGT CTCTCGATCA TCTAAAGCCG GTCTTCAATT CCCCGTCGGA
AGAATCGCTA GATTCCTCAA ATCCGGTAAA TACGCCGAGC GTGTCGGTGC CGGAGCTCCG
GTCTATCTCT CCGCTGTTCT CGAGTACCTC GCCGCCGAGG TGTTGGAGCT GGCGGGAAAC
GCAGCAAGGG ATAACAAGAA GACACGTATA GTACCAAGAC ACATTCAGCT TGCAGTGAGG
AACGATGAAG AGTTAAGCAA ACTTCTGGGA AGTGTGACGA TTGCGAATGG AGGAGTTTTG
CCAAATATTC ATCAGACTCT TTTGCCATCC AAGGTTGGCA AGAACAAAGG AGATATTGGA
TCTGCTTCTC AGGAGTTCTG AGGTTCTTAG ACTTCTTAGT TCAGTTCTCT TGTTTGGATT
CGGAACTTGT AAAATAGACC CTGATGGTGT TTTTTGGGGA TCAAATTAGG TTTTAAAGCT
AAGTATATTT GGCTTTTGCC TAAGTATGTT TAATTAGTGA ATGATATGAT ATTTCGGAAC
GAATCATGTA TCAATGGAA
```

<u>HTA6-C</u>

```
TTAAATCACA AATCTTCAAC TTCCGATACT TTCAATCTCT CTAAACTCTC AATTTCAGTA
ATCGATAACC GTAGCAATGG AATCCACCGG AAAAGTGAAG AAAGCTTTCG GAGGAAGAAA
ACCACCTGGT GCCCCAAAAA CCAAATCGGT TTCGAAATCG ATGAAAGCCG GTCTTCAATT
CCCAGTGGGA AGAATCACTC GTTTCCTGAA GAAAGGACGA TACGCTCAGA GACTTGGTGG
TGGTGCTCCG GTTTACATGG CCGCCGTTCT TGAATACCTC GCCGCAGAAG TTCTGGAGCT
TGCTGGTAAC GCTGCGAGAG ATAACAAGAA ATCAAGGATA ATTCCGAGGC ATCTTCTTCT
CGCGATAAGG AACGATGAAG AATTGGGGAA ACTTCTGAGT GGTGTCACAA TCGCTCACGG
TGGTGTTTTG CCTAACATCA ACTCTGTTCT ATTGCCTAAG AAGTCTGCCA CTAAACCAGC
TGAAGAAAAG GCTACCAAAT CACCAGTCAA GTCTCCAAAG AAAGCTTAAT CTGCTAGAGT
TTTCGTTGCT AGTTTGTGTT TGAGCTCTGG TGAATGTAGA AATTTGAAGC TTTTGGATCT
TAGTTTCTAT GTATTTGGTG ATTTAGAATG TTGTTCAAAA TCCTTTTCCT AATCATAAGA
ATTTATGATC TATCTATTAT ACGCTTCGTC TAATCTTTT
```

<u>HTA7-C</u>

```
CAAATCGTAA ACCGCCACAA AACCGAAAAA AACACTAATT GTGCTTTCCC TTTAGATTCA
TTTGTATTTT CTTTTGGAGC TTTTGAACAA TGGAGTCATC ACAAGCAACG ACGAAGCCAA
CGAGAGGAGC AGGAGGAAGG AAAGGTGGAG ATAGGAAGAA GAGTGTTAGT AAATCTGTTA
AAGCTGGTCT TCAATTTCCC GTTGGTCGTA TCGCTCGTTA CTTGAAGAAA GGTCGGTACG
CTCTCCGATA CGGTTCCGGT GCTCCGGTTT ACCTCGCCGC CGTTCTCGAA TACCTAGCCG
CCGAGGTACT TGAGCTAGCT GGGAACGCAG CGAGAGATAA TAAGAAGAAC AGGATAAACC
CTAGGCATCT ATGTTAGCG ATAAGGAACG ATGAGGAATT GGGGAGATTG CTTCATGGAG
TTACTATTGC TAGTGGTGGT GTTCTTCCAA ACATTAATCC AGTTCTTCTT CCTAAGAAAT
CAACAGCTTC TTCTTCTCAA GCGGAGAAAG CTTCTGCTAC CAAATCTCCT AAGAAGGCTT
GATAAAGAAT AGTATCGATG TTGCTTTTTG GTTATATTCG GATCTTAGAT GAAGAAGAAG
AAGAAGAGA AACAACTTGT TTTTTGTTTT AGAGGATTTG TGTAGGTATC TGAAATCTTC
TTCTCTTTGT TTTGGTTTGT CTTATGTAAA AACCATGGGA AGATGATTAT GTTTGTTAAC
GCAATTTGTA ATGGAAAATA ATTAAGTTCT GGGATTAGT
```

<div align="center">

FIG. 6(B)

</div>

HTA8-C

```
AATTCGACGT CTCTCTTTTG TCTCTGTATC GATTTTCTCG CCGCGAATTT CGAATAGGTT
CTTCACCATA AGCTTGAGAT CTTATTTCTC TACTGTTCTT TGCTTCTTCT CTATCGATAT
GGCTGGTAAA GGTGGGAAAG GGCTTCTAGC TGCGAAGACG ACGGCAGCAG CTGCAAACAA
AGACAGTGTT AAGAAGAAAT CCATCTCTCG CTCTTCTCGT GCTGGTATTC AGTTTCCAGT
GGGTCGTATT CATCGTCAAC TCAAGCAAAG AGTTTCAGCA CATGGAAGAG TTGGTGCCAC
TGCTGCTGTT TACACTGCAT CAATTCTAGA ATACTTGACT GCTGAAGTAC TCGAGTTAGC
TGGAAATGCG AGCAAGGATC TCAAAGTGAA GAGAATTACA CCAAGACATT TGCAGCTTGC
AATCAGAGGA GATGAGGAAC TTGACACTCT CATCAAAGGA ACCATTGCAG GAGGAGGTGT
GATCCCTCAC ATCCACAAGT CCCTTGTCAA CAAAGTCACC AAGGATTGAG TTTCGCTCTC
TGAGTCCTAA GTCTCTATTA TACTATGTGC TCTTTTCTAG ACGCCCTCAT GTGTATATGG
GTTCATTGTA TCTCTTAGGT CTCTCGTTTT AGACTCATAC TCTTGTTATT TTGCTAATGC
TTACATGATT GAGG
```

HTA9-C

```
ATCGGGAGAC TCCTCTTCGA GCTCATCTTC TTCTCTCTCT TTTTATCTTT GGTTGTGCGA
TCTCCTTTCT CTTTCAATCT CCAAGGATTT TACTGTGAGA TATTTGGCGG GAAAATGTCG
GGGAAAGGTG CTAAAGGTTT GATTATGGGG AAACCCAGCG GTAGCGACAA GGATAAGGAC
AAGAAGAAGC CTATCACTCG TTCTTCTCGA GCTGGTCTCC AGTTCCCAGT TGGTAGGGTG
CATCGTCTGT TAAAGACAAG GTCCACTGCT CATGGAAGGG TTGGAGCAAC TGCAGCTGTT
TACACAGCAG CAATATTGGA GTATCTGACT GCAGAAGTTT TGGAGTTGGC TGGTAACGCC
AGCAAGGACT TGAAGGTGAA ACGTATCTCG CCGAGGCATT TGCAGCTTGC GATTCGTGGA
GATGAGGAGC TCGATACTCT CATCAAAGGA ACTATAGCTG GTGGTGGAGT CATCCCTCAT
ATCCACAAGA GTCTCATCAA CAAATCCGCC AAGGAATAGG ACTTTTTTAG TTACCCGCTT
TGTTCTGTGT TGCTTTTCTG TTTTCTAAAT GTTTTTAAGA GTTGTTGTTT GATAAGATGC
TAGAGAAGCT CTTTTTAGGA TCGTTTGCTA TTGTTCGTTC GATCAGCGTA CTTTGTGTTA
GAGACGCCAG TCGATTTATC TATCTTTAAA AATGTATTCG AATGATTATC CAAAAACCAT
TTCTGA
```

FIG. 6(C)

HTA10-C

```
AACAACAAAT TCGATTCTTA TAACTGTTTC CCTCTCATCT TTACACAAAA GTATTCTAAT
CGATTTCAAT GGCGGGTCGT GGTAAAACAC TCGGATCTGG GTCTGCGAAG AAGGCAACAA
CAAGAAGCAG CAAAGCCGGT CTCCAATTCC CTGTGGGTCG TATCGCTCGT TTCTTGAAGA
AAGGCAAATA CGCCGAACGT GTTGGTGCCG GAGCTCCGGT TTACTTAGCC GCCGTTCTCG
AATACCTCGC CGCTGAGGTA TTGGAATTGG CTGGAAACGC AGCGAGGGAT AACAAGAAGA
CGAGGATTGT TCCAAGGCAT ATTCAATTGG CGGTGAGGAA CGATGAAGAA TTGAGCAAAT
TGCTTGGAGA TGTGACTATT GCTAATGGAG GTGTGATGCC TAACATTCAC AATCTTCTTC
TTCCTAAGAA GACCGGTGCT TCCAAGCCAT CTGCTGAAGA CGATTGATTA ATCAACCAAA
TCCACTCTCT TGTGTTTTTT GAGTTTTTAA GGCTTTTTAA GAGTAATTTA GATTAGATCT
ATGGTGAAGA AAGAATCTAT CTTCTGTGTT TTTTGAATTG AATTGAATGT TCATATGCTT
TCAATTTCTT ATGGAATCAA GATTTTAACT TTTCT
```

```
HTCCTTTTGCAT TCTCTCGTCG TCGTCTCAAG ATCTAGAAGA AGGAAACAAC AATTTCAAGA
GACATGGCAG GCAAAGGTGG AAAAGGACTC GTAGCTGCGA AGACGATGGC TGCTAACAAG
GACAAAGACA AGGACAAGAA GAAACCCATC TCTCGCTCTG CTCGTGCTGG TATTCAGTTT
CCAGTTGGAC GAATTCACAG GCAACTGAAG ACCCGAGTCT CGGCACATGG CAGAGTTGGT
GCCACTGCAG CCGTCTACAC AGCTTCAATC CTGGAGTATC TGACAGCAGA GGTTCTTGAG
TTGGCTGGGA ATGCGAGCAA GGATCTGGAC AACGCCAAG GCATCTGCAG
TTGGCGATTA GAGGAGATGA GGAGCTGGAC ACACTCATCA AGGGAACGAT TGCTGGAGGT
GGTGTGATCC CTCACATCCA CAAGTCTCTC ATCAACAAAA CCACCAAGGA GTGATGTGTA
GCTTTTTATG GTGTTTGTAT TTCTGTAGTC TTGGACTCAT TTTCCTTTAT CCTTTTCTTA
GTTCTTTGAC TAGTGTTGAC CTCTTCTGGA CATCCTCAGG TGTACATTAG TTAATTTGAA
CTCTTTAGGT TCCTT
```

HTA11-C

```
CCTTTTGCAT TCTCTCGTCG TCGTCTCAAG ATCTAGAAGA AGGAAACAAC AATTTCAAGA
GACATGGCAG GCAAAGGTGG AAAAGGACTC GTAGCTGCGA AGACGATGGC TGCTAACAAG
GACAAAGACA AGGACAAGAA GAAACCCATC TCTCGCTCTG CTCGTGCTGG TATTCAGTTT
CCAGTTGGAC GAATTCACAG GCAACTGAAG ACCCGAGTCT CGGCACATGG CAGAGTTGGT
GCCACTGCAG CCGTCTACAC AGCTTCAATC CTGGAGTATC TGACAGCAGA GGTTCTTGAG
TTGGCTGGGA ATGCGAGCAA GGATCTCAAA GTGAAGAGGA TAACGCCAAG GCATCTGCAG
TTGGCGATTA GAGGAGATGA GGAGCTGGAC ACACTCATCA AGGGAACGAT TGCTGGAGGT
GGTGTGATCC CTCACATCCA CAAGTCTCTC ATCAACAAAA CCACCAAGGA GTGATGTGTA
GCTTTTTATG GTGTTTGTAT TTCTGTAGTC TTGGACTCAT TTTCCTTTAT CCTTTTCTTA
GTTCTTTGAC TAGTGTTGAC CTCTTCTGGA CATCCTCAGG TGTACATTAG TTAATTTGAA
CTCTTTAGGT TCCTT
```

FIG. 6(D)

HTA12-C

```
ATGGATTCCG GAACCAAAGT GAAGAAAGGA GCCGCTGGAA GAAGAAGTGG TGGAGGTCCT
AAGAAGAAAC CGGTTTCCCG TTCGGTTAAA TCCGGTCTAC AGTTTCCTGT CGGTAGGATC
GGTCGGTATC TTAAGAAAGG TCGTTATTCG AAGCGTGTCG GAACCGGAGC TCCGGTCTAT
CTCGCCGCCG TCCTCGAGTA TCTTGCTGCT GAGGTTCTCG AGCTTGCTGG TAACGCTGCA
AGAGATAACA AAAAGAACCG TATTATACCA CGCCATGTTC TATTAGCGGT GAGGAACGAC
GAGGAGCTAG GGACACTACT CAAAGGCGTA ACCATTGCAC ACGGCGGTGT TTTACCAAAC
ATAAACCCAA TACTCCTCCC AAAGAAGTCT GAGAAATCTT AGTACTTCTT TCTTCATTCC
AAATCACCAT CAAAGGCAAC CAAATCCCCT AAGAAATCTT AGTACTTCTT TCTTCATTCC
TCTGTATAAC CTACTGTTTC TATCTCTCTG TACGTTTCTC TGTAAAGACA GAACAGAATA
TCTCTTTGTT GTTGTGAGAA AGCTTAGTTT CTCTGATCGT CGTTGTGAAA TAAAAAATGC
AACGTTTCAT AT
```

HTA13-C

```
ATCTTAATTT CCCTCGCATT GAGAATTTTC AACTTTTTCT ATCTCTCTTC CCAAATCACA
AATGGCGGGT CGCGGCAAAA CTCTCGGATC TGGCGTTGCT AAGAAATCAA CATCGAGAAG
CAGCAAAGCC GGTCTCCAAT TCCCCGTTGG TCGTATCGCT CGTTTTCTAA AGAACGGCAA
GTACGCAACA CGTGTTGGTG CCGGAGCTCC GGTTTACTTA GCCGCCGTTC TCGAATACCT
CGCCGCTGAG GTATTGGAAT TGGCTGGTGAG AAACGATGAG GAGCTGAGTA AACTGCTTGG
TGTGCCACGT CACATTCAGC TCGCGGGTGAG AAACGATGAG GAGCTGAGTA AACTGCTTGG
AGATGTGACG ATTGCTAATG GAGGTGTGAT GCCTAACATT CACAGTCTTC TTCTTCCCAA
GAAAGCTGGT GCTTCAAAAC CTTCCGCTGA TGAAGATTAG ATTAGGGATT TGTGTTGTGG
TTGTTTAGCT AATTAATGTG TAGCTTAGTC TTTCATTAGA TTAGATCTGA ATTAGTTTTC
ATTAATGGTG TTGTGTAGTC TCTCTTTTGC TTCAAAAACA AGTATTAAAA TC
```

FIG. 6(E)

HTA1-P

MAGRGKTLGS GGAKKATSRS SKAGLQFPVG RIARFLKAGK YAERVGAGAP VYLAAVLEYL
AAEVLELAGN AARDNKKTRI VPRHIQLAVR NDEELSKLLG DVTIANGGVM PNIHNLLLPK
KAGASKPQED

HTA2-P

MAGRGKQLGS GAAKKSTSRS SKAGLQFPVG RIARFLKAGK YAERVGAGAP VYLAAVLEYL
AAEVLELAGN AARDNKKTRI VPRHIQLAVR NDEELSKLLG DVTIANGGVM PNIHNLLLPK
KAGSSKPTEE D

HTA3-P

MSSGAGSGTT KGGRGKPKAT KSVSRSSKAG LQFPVGRIAR FLKAGKYAER VGAGAPVYLS
AVLEYLAAEV LELAGNAARD NKKTRIVPRH IQLAVRNDEE LSKLLGSVTI ANGGVLPNIH
QTLLPSKVGK NKGDIGSASQ EF

HTA4-P

MVCNTNILKD VSTKISAFEN VRMIMVEGEM FQVARIHKQL KNRVSAHSSV GATDVVYMTS
ILEYLTTEVL QLAENTSKDL KVKRITPRHL QLAIRGDEEL DTLIKGTIIG GSVIPHIH

HTA5-P

MSTGAGSGTT KGGRGKPKAT KSVSRSSKAG LQFPVGRIAR FLKSGKYAER VGAGAPVYLS
AVLEYLAAEV LELAGNAARD NKKTRIVPRH IQLAVRNDEE LSKLLGSVTI ANGGVLPNIH
QTLLPSKVGK NKGDIGSASQ EF

HTA6-P

MESTGKVKKA FGGRKPPGAP KTKSVSKSMK AGLQFPVGRI TRFLKKGRYA QRLGGGAPVY
MAAVLEYLAA EVLELAGNAA RDNKKSRIIP RHLLLAIRND EELGKLLSGV TIAHGGVLPN
INSVLLPKKS ATKPAEEKAT KSPVKSPKKA

HTA7-P

MESSQATTKP TRGAGGRKGG DRKKSVSKSV KAGLQFPVGR IARYLKKGRY ALRYGSGAPV
YLAAVLEYLA AEVLELAGNA ARDNKKNRIN PRHLCLAIRN DEELGRLLHG VTIASGGVLP
NINPVLLPKK STASSSQAEK ASATKSPKKA

HTA8-P

MAGKGGKGLL AAKTTAAAAN KDSVKKKSIS RSSRAGIQFP VGRIHRQLKQ RVSAHGRVGA
TAAVYTASIL EYLTAEVLEL AGNASKDLKV KRITPRHLQL AIRGDEELDT LIKGTIAGGG
VIPHIHKSLV NKVTKD

HTA9-P

MSGKGAKGLI MGKPSGSDKD KDKKKPITRS SRAGLQFPVG RVHRLLKTRS TAHGRVGATA
AVYTAAILEY LTAEVLELAG NASKDLKVKR ISPRHLQLAI RGDEELDTLI KGTIAGGGVI
PHIHKSLINK SAKE

FIG. 7 (A)

HTA10-P
MAGRGKTLGS GSAKKATTRS SKAGLQFPVG RIARFLKKGK YAERVGAGAP VYLAAVLEYL
AAEVLELAGN AARDNKKTRI VPRHIQLAVR NDEELSKLLG DVTIANGGVM PNIHNLLLPK
KTGASKPSAE DD

HTA11-P
MAGKGGKGLV AAKTMAANKD KDKDKKKPIS RSARAGIQFP VGRIHRQLKT RVSAHGRVGA
TAAVYTASIL EYLTAEVLEL AGNASKDLKV KRITPRHLQL AIRGDEELDT LIKGTIAGGG
VIPHIHKSLI NKTTKE

HTA12-P
MDSGTKVKKG AAGRRSGGGP KKKPVSRSVK SGLQFPVGRI GRYLKKGRYS KRVGTGAPVY
LAAVLEYLAA EVLELAGNAA RDNKKNRIIP RHVLLAVRND EELGTLLKGV TIAHGGVLPN
INPILLPKKS EKAASTTKTP KSPSKATKSP KKS

HTA13-P
MAGRGKTLGS GVAKKSTSRS SKAGLQFPVG RIARFLKNGK YATRVGAGAP VYLAAVLEYL
AAEVLELAGN AARDNKKTRI VPRHIQLAVR NDEELSKLLG DVTIANGGVM PNIHSLLLPK
KAGASKPSAD ED

FIG. 7 (B)

HTA1-g

```
ctcacttaa catttttata tagtgacatt tttagtaatc caacgttatt tatatgatta
gtaattcatc aaatttatat agtgataaaa ttccacaatg gttgttcaat aaaaatatga
acaacacaat agaattagta aaagtgacta tgttaaatca ttttcttcgc tggggtttgg
tgggcgagtt ctaaacccat aagcggccca tttacttcgt aaactcaatt cgatttgttc
agcgttccaa gcccataata ttattttcaa gggcataaaa taaattgagg tttatatgga
aaatttggaa attccctcgt ccagaagaaa ccaacaaaaa ctgcaaaagt tcaagcggtg
ggagaaaaaa cttcagatcg tagccattca ttaaattata atcaacggtt taaacctctt
cgatccgcgt actctattct tattggtcaa ataacttaat cctccaacat atataaacaa
caatcagatt tctctctgtT AATTTCGTCA AGAAAAAAAT TCGATTTTTT TGCGCTCTTT
GTGGGTTGTT GTTGTTGAAA ATGGCTGGTC GTGGAAAAAC TCTTGGATCC GGTGGGGCGA
AGAAAGCTAC ATCTCGGAGT AGCAAAGCCG GTCTTCAATT CCCGGTGGGT CGTATCGCTC
GTTTCTTAAA AGCCGGTAAA TACGCCGAAC GTGTTGGTGC CGGTGCTCCG GTTTATCTCG
CCGCCGTTCT CGAATATTTG GCCGCCGAGg taaaattaca tcgtctttc tctctttccc
attccgtttc cgatcttatt cgtctgactc tgtttttgcg tgatcgatta cgaatctagg
gttcttacat tttccgaatt tgacatgcaa aaattgaatt agattcgtgt ttgaattgaa
ttgttgtagt tctgtaattg acctaatttt gggtttgttc tgattggttg atggtaatcg
agatcatatg aatcgttgta gttttctcgc aagattctaa attttttca attatggtaa
ccaatttgat ttgagttgtt aaagttctca aatttggaaa gtttgatcat gaattgtgtg
ttttgaattt gttcagGTTC TTGAATTAGC TGGAAACGCA GCAAGAGACA ACAAGAAGAC
ACGTATTGTT CCTCGTCACA TTCAGCTTGC GGTCAGAAAC GATGAGGAGC TAAGCAAGCT
TCTTGGAGAT GTGACGATTG CTAATGGAGG AGTGATGCCT AACATCCACA ATCTCCTTCT
CCCTAAGAAG GCTGGTGCTT CAAAGCCTCA GGAAGATTAG GTCTTTTAAC ACAATGATAT
AGAACACGTC TCTCTTTTGG CTTTAGATCT AATAACCTAA TAACTAGCTA GATGTTTTCA
CTTTTTGTAT CTTTGCTTTT TTTAATTCCT TTAGGGATTT GTTTCTTTCC GTTTCTGTTT
CGACATGTTG TTTCTGTTTT TGTGAATATA TGAAAGTATT TTGCgaaata tgaatgataa
tgtctttcaa aaatgctgat gccttattca acaagcaaac actgcacttt gtagaagtat
aaagatttc tttgttgttg atagtaatag tacaagaaag aaaaaaacac aaaggattat
tattctatgg ccaacaagat tgaaaaaata tgaaagaaa gtatttctaa gactaaa
```

FIG. 8 (A)

HTA2-G

```
tgtggctttt cagccaccac aatatgtcat acaacttgca actgttatta tccaaattta
aacccacata aagaatacgt ctaaaaagca aacaataatc attacaacac ttagtaagtt
ataacttctc cctaacttct ttgaaatttt gataaaaagg aaaatacata tgtacaagaa
gtgaagaaac aatttatttg ggccgaacag tgttaaattt tgggccagat aacgttaaaa
taaaaaggag tatttctatt taacaagccc aatatagccc atataacaat ccattgaaat
catcggagaa ccaaaaaaag gacaaagcag gtgggcgcac gaatctcaaa tcacgtccct
taaacttgta acaatctgac ggtgtagatt atcgatccat gcagtgtcat atcattggtc
agaaatattt tctatctcgc cactatatta atcatcatgg cgggtttcgc tgatactcat
tattgttatt tttgacagaG AGAAATTTCT CAGTTACGCT TCATCCTCCT CTAAGAGATC
TTTTTTCTAT CTTGGGTAGT AGAGAGAAAT GGCGGGTCGG GGAAAACAAC TTGGATCTGG
TGCAGCGAAG AAGTCTACTT CTCGTAGTAG CAAGGCTGGG CTTCAATTCC CTGTTGGTCG
TATCGCTCGA TTTTTGAAAG CCGGTAAGTA CGCCGAGCGT GTTGGTGCCG GAGCTCCGGT
CTATCTCGCC GCCGTTCTTG AATACCTCGC CGCTGAGgta atcagtctct tctatttatc
acctgtttaa tttactcttt ttaccgaatt aaatggttat agcttgcatc tagggttctg
gattttagat tttcttaccc ctttcgttaa attatgcgaa atttggaata ttttagaatg
cattagttcc ttagtttgtt tttttcttgg gaaaaattgt ccattttttt tgtgtagttt
tgagctcaat ttgtgtttct ttgtgctcat catgcttatc gaaattaggg ttaaatttgt
tccttactac tttgagttat catagttggc actgattgat actgtcaatt gtgttctcaa
attcgaaaaa tgttgttgtt cacttagttt tgtctttgga tatgtgaaca tgtctgcttg
ggaactgaat ttggtgcgct cactttctat agGTACTTGA GCTTGCTGGG AACGCAGCGA
GAGACAACAA GAAGACCCGT ATAGTTCCAC GACACATTCA GCTTGCTGTG AGGAATGATG
AGGAGCTAAG CAAGTTGCTT GGAGATGTGA CAATTGCTAA TGGAGGAGTG ATGCCTAACA
TCCACAATCT CCTTCTCCCC AAGAAGGCTG GTTCATCTAA GCCTACTGAA GAAGATTAGG
TTCATTACGA AGATAGGGAA AGCTGGAAAC TGGTTGATAT CAGATAATGC TTAGGATTGT
TTTTTTTTTC ATTTGCTTTT CCTCTGCAGC AATGGAAGCT GTGTGGTTGT ACTAGTTGTT
AAGGTTACCT TTGTTTCACT TTATGTGAAT ATATGAAGAA ATTGTTCTAT TTCagtcttg
actccacttc tttagcattg ttcactgatt catttgttgt tcctgaaagt caatttaaat
tccttcgata agctacacga aactgcacac atagtcacat gtaacttgtt tttaaacttt
ttgttttgtt ttgtttttgg ttgaaaactc gagaaaaaaa gaatcagtag acccataatc
acagaaaagt caagccacca agcgattcga catagacagt ggagaagtga cgagattgag
agaatcgagg cgagagagag agagagacag ggacgattcg gtttagagct ctcgtatgag
gtatatttca atttcgtttt cggcgatatc ttgtgtcgca aat
```

FIG. 8 (B)

HTA3-G
```
gtttgacttt ataaaaacat gcagaaatgt acaaagaata tatacatata attatcttaa
ttaatttaat aactatcaat ctgtcatact acaccactat caatctatca tcatcaccac
cattatgctt gacagtcact ttttagttgg cccatgttaa agctgtttgt gttatttgtt
attgggctta tccttcacta ccatttgatt gaaatttatc tcatgaccca acaaattgag
ctaatttcgg ttcaacattg gatgttaatt ttttttcaaa ccgaaccgaa ttatagtttt
ggtgcatttt ttctaaaccg aattttaaca caaatagtaa tcgtcttaaa aaattcaccg
acttgttaaa aagaggcgga aaaaaaaacc cgcgagaact tacaatggtg ccacgctggc
aatccgcgtg actcacaact aaccaatcaa aatccattat ctcaacgcta tatatttcag
aaatcacaac ctaaaccctA AATCACTCCA CTCACAAAAT CCTCAGCCAT CTCTAATCAC
ATTTTACAAT CGCCTCTTCA AATTTCCCGA TAAACAAAAA ATGAGTTCCG GCGCCGGCAG
TGGAACAACT AAAGGTGGCA GAGGAAAGCC AAAAGCTACA AAGTCCGTCT CTCGATCTTC
TAAAGCTGGT CTTCAATTTC CCGTTGGAAG AATCGCTAGA TTCCTTAAAG CCGGTAAATA
CGCCGAACGT GTTGGTGCCG GTGCTCCCGT TTATCTCTCC GCCGTTCTCG AATACCTCGC
CGCTGAGgta acaaacaatc ttctgtttgg tatttagtct tttagtctct atgatgagaa
tcactcgtaa ttgatatatc actagatttt tcgatgttta ccgaatcttt gattttgatt
tgatgttaag gtgtcttcta gagtctgatc tcttatatga tgttgatata atcattagGT
ATTGGAGCTA GCTGGAAATG CAGCAAGAGA TAACAAGAAG ACACGTATCG TACCACGGCA
CATTCAGCTT GCAGTGAGGA ACGATGAAGA GCTTAGTCTT CTTCTTGGAA GTGTAACAAT
TGCTAATGGA GGAGTTTTGC CCAACATTCA TCAGACTCTT CTCCCATCAA AGGTTGGAAA
GAACAAAGGC GATATCGGAT CTGCTTCTCA AGAGTTTTAA TTTTATTTTT TAGCTTGTAA
CATAGACATG GCTCTCTGTT CCACAATAGT TTTGGTATTT TCATGTTACT CAAAAACTGT
GTTTGCAAAT CCAGTAATGA ATTCGGTTTG AAGAAGTGAA ATAGTTAAAT TTGATGTGTT
GAAATAGCGG ATTCAATGGC TTCAATACAA GTGCTAATAG GTTTGGCTTT AGCCATGGTT
TCTGCAAGTG AGACTCTTGC TTCTTTGTGA GAATGTAATA ATGAGACAGT GTTGGAAACA
GCCCATTTGA TATGAGCCTC CTTTTCTGAT Tctgtgaagc cgagccaccg cagaacatcg
ttcaactgca acactcaaat ctcaaaaaat acattagaag attatagtct catgactatg
agtggaagga gacttgagtt tgtattacct tgacaatatc tgagtatag
```


FIG. 8 (C)

HTA4-G
```
ttaagactga taagtatcaa caagcgaagt tttgatttgc ttgttgaagc tagtctcgga
cttcaaatga cacttgatat gttcatacat gtaacatgtg aagaagaact tattttggaa
cccaaagaca tgaatagttt gaaaaccttt ctcatgagaa tatgcaatgt taagatcttt
tacttgtctt atgacactct ataggtcagt cccatctttt ttgttaaagt ttacaattga
caattagtta gtgatgatat agttaacttg gtttttgttt cacgaactta atgactgaag
ttaaacaata caggtattca acaacctgat tcagttaact attttgccat gtatagagag
ggaatcactg ccaaatctac tcaagaattt tccaaatcta gaaaccttct tctatgaagt
aacatacaca ttcttgatat taacaactga catgatttta cacagtaata aattttgaaa
cggtctcatt ttatgtttcA TGGTGTGCAA CACGAATATA CTAAAGATG TGTCGACGAA
GATAAGTGCT TTTGAAAATG TTCGGATGAT TATGGTGGAG GGAGAGATGg tatgatagga
gaagtctttt gctcatagaa gtagagtgct aacagttcac aatgacttta caatctatgt
ggctccttga aacaataaac tatggatgtg cataactaat ggacaatctt catatttagg
aatgactaaa atatcttaac taatgcttaa acactcatgt gtcaccaaat aacaatacat
ggaacatgag tgtcaataat gaccttgtat tgtaatgggt cgctggttta gttgaagttc
cagtagcaca taccgaaact acattccttt tttatggagt aattctgttt taggatattt
ttagggtttt tggattttgt ataagacaaa aaaaaacaca aacacaataa gctacttaac
tagaaaataa catcatcata taatttgact aaataaacaa atcacttctt cgtggttttg
ttgatgagag acatgtggat gtgagagact actccttatc caccaattgt tactttgata
aatggatcaa gatccctatc tcctgcgatc accaactata aatgcattag agtaatcctc
tttattttct tatcattgat tgtgttttc ggtaactcaa taacctatga agttaggcac
tctaggattg aagccatgta gtcaacaaca atagcaccaa gtcgaccatg ttgtagatac
tctagtcttg agttgcatgt gaatacgacc cactagaaat tgaaataaac aaagaaattt
catttttgt agtataattt gataaaattt tatactgata ttgtttcttt gtttctttca
gTTTCAAGTG GCTCGTATTC ACAAGCAACT TAAGAACAGA GTTTCTGCAC ATAGTAGTGT
TGGTGCGACT GATGTTGTCT ACATGACTTC AATCCTTGAA TACCTAACTA CAGAGGTTCT
TCAGTTGGCC GAAAACACTA GCAAAGATTT AAAAGTGAAG AGGATAACTC CAAGGCATTT
GCAGTTGGCG ATCAGAGGAG ATGAAGAGCT TGACACACTC ATCAAAGGAA CAATTATTGG
AGGAAGTGTG ATCCCTCACA TCCACTAGtc tcatcaacaa aacaaccaag gagtgatttg
tttcttaagt taactaatat gatgtgatat gctagttaag tagcttatgg tgtttcagtt
actctagttt tggatcggag aagtagttta agtgttaagt cttgagacat cataattta
cgtctcatct cgtaaacgat aggagaagtt ctttgctcct agagttttgg tgctaaacaa
ttcacagtga tatgcattcc atgtggctcc ttaaaacact caaccatgca tgcacaagca
gtggaccatc ttcatattca tgactgacta aaatattgtc atcaatgctt actaatatgt
caaattgtag taactcggtg gtttaattga agtttcattg ttatatatat ggcgtatagg
cctaaagttg tatgaagttt tgattgatga gttaagacat cgtattatat aaagtaggat
tttcaagtta ctaactcaac tgattaagac acaagtcaag tactttga
```

FIG. 8 (D)

HTA5-G
```
agtaaaagga gatgtacgaa ccatagatca cataataatt gaaagggtag atgatctgcc
acgttggcaa tccgtgtgat ctaaagtcta acaaatcaca atcaatctta gtagcctata
tattgattta ttcttgttgc ttgatcaata aaggttacat catagaacta aaatcatatg
aaaccgaatc gatcaaccct ggccatcttt taaataacca tcaatacatt gggatgatca
atccacaata aatgtattga tgtaaattaa aaatatgaac ttgtaacaga tcaagattca
gggtctaaaa ttatagaaag cttaataatg gaggactatt tcactaaaat cacttttcgt
ttgtacatta ttttcaaaaa gtaaaaggag atgtacgaac catagatcac ataataattg
aaagggtaga tgatctgcca cgttggcaat ccgtgtgatc taaagtctaa caaatcacaa
tcaatcttag tagcctataC ATATAGAGAA GAGCAAAACC CTAAAGCCCA CTCATCTTCT
CAATTCCCAG ATCATCTACA ATAGTCATTT CTCTTCGATT TCTTCAAACT CTCATCAAAT
CGTTTATCTG TTCTAAATTT CGAAGAAGAC GATGAGTACA GGCGCAGGAA GCGGAACAAC
CAAAGGTGGC AGAGGAAAGC CAAAGGCCAC CAAATCCGTC TCTCGATCAT CTAAAGCCGG
TCTTCAATTC CCCGTCGGAA GAATCGCTAG ATTCCTCAAA TCCGGTAAAT ACGCCGAGCG
TGTCGGTGCC GGAGCTCCGG TCTATCTCTC CGCTGTTCTC GAGTACCTCG CCGCCGAGgt
aatttatttt tcttgtcttc caatttggtt ttcaatttcg atttggtcac atctgaattg
gatcttgtac tgatttgatt ttgatttggt ttgggttgat agGTGTTGGA GCTGGCGGGA
AACGCAGCAA GGGATAACAA GAAGACACGT ATAGTACCAA GACACATTCA GCTTGCAGTG
AGGAACGATG AAGAGTTAAG CAAACTTCTG GGAAGTGTGA CGATTGCGAA TGGAGGAGTT
TTGCCAAATA TTCATCAGAC TCTTTTGCCA TCCAAGGTTG GCAAGAACAA AGGAGATATT
GGATCTGCTT CTCAGGAGTT CTGAGGTTCT TAGACTTCTT AGTTCAGTTC TCTTGTTTGG
ATTCGGAACT TGTAAAATAG ACCCTGATGG TGTTTTTGG GGATCAAATT AGGTTTTAAA
GCTAAGTATA TTTGGCTTTT GCCTAAGTAT GTTAATTAG TGAATGATAT GATATTTCGG
AACGAATCAT GTATCAATGG AActgaatta atcgatatat caacccagaa acattttgaa
acacaaacta tgcatacttg attctttatt gcagatacat gcaactcatg gagcctaata
ctaaacattg ctttgatcat gtttcaattt aaccagactc attttttaat tcacccaggg
agtaaaactc attaggtttt gggcctaact gcctcagtca tggtaatcct gaattaactt
cactaagtta ccctcatctg ttggttcgca cctgaattag ctcgctaaat taccttcatc
t
```

FIG. 8 (E)

HTA6-G

```
gtctataaac tattaaactc tagggtttaa tatgtacaaa ttctcttagg ctacttttga
ttaggactcc cttgtgaatg tcaaaacata atgcgacccc aaaatatctt tataagtata
attgttaatc ttttgattct aaaatattgt tcattgtttt ccaattaggg cttcaaagac
tcttgagaag catcattaaa catttaaatg tcaatgacta actttacatt taacatataa
ttaatctacc gaaaattagt gtaagttgca agaaattatc caaaaaccca aaataaagca
agcgctaaac ttttaaaatg ctacaaaaaa actggcgccg tttcaaaaag catacctctt
tttgattggt taatacatag tcacgcggat cgtgctttat ttgaacatcc accgtcgata
gactaaatcc aacggataat aatcctctcc cttctttttt tttcatttac ctataaatat
cacagagtac ccttcaactT TAAATCACAA ATCTTCAACT TCCGATACTT TCAATCTCTC
TAAACTCTCA ATTTCAGTAA TCGATAACCG TAGCAATGGA ATCCACCGGA AAAGTGAAGA
AAGCTTTCGG AGGAAGAAAA CCACCTGGTG CCCCAAAAAC CAAATCGGTT TCGAAATCGA
TGAAAGCCGG TCTTCAATTC CCAGTGGGAA GAATCACTCG TTTCCTGAAG AAAGGACGAT
ACGCTCAGAG ACTTGGTGGT GGTGCTCCGG TTTACATGGC CGCCGTTCTT GAATACCTCG
CCGCAGAAgt aagtgtttcc cgatctggat tttctagtaa gatttttttt ttacatttca
aaatcaattt tctgattcga atttattgat ctcagGTTCT GGAGCTTGCT GGTAACGCTG
CGAGAGATAA CAAGAAATCA AGGATAATTC CGAGGCATCT TCTTCTCGCG ATAAGGAACG
ATGAAGAATT GGGGAAACTT CTGAGTGGTG TCACAATCGC TCACGGTGGT GTTTTGCCTA
ACATCAACTC TGTTCTATTG CCTAAGAAGT CTGCCACTAA ACCAGCTGAA GAAAAGGCTA
CCAAATCACC AGTCAAGTCT CCAAAGAAAG CTTAATCTGC TAGAGTTTTC GTTGCTAGTT
TGTGTTTGAG CTCTGGTGAA TGTAGAAATT TGAAGCTTTT GGATCTTAGT TTCTATGTAT
TTGGTGATTT AGAATGTTGT TCAAAATCCT TTTCCTAATC ATAAGAATTT ATGATCTATC
TATTATACGC TTCGTCTAAT CTTTTggtcc actcgtcgta atgtcattag tgaatattta
ataaacaact ttgtcatcga cattaacgaa cccttttatt cgctgtgcta aatttttctt
ttaggtgaag ccaaatctaa catgttctct tctctctttg ttcgttgtaa ttccataaca
tctccattac gatgttttgc gattcgagga tcttgttcta aattatt
```

FIG. 8 (F)

HTA7-G
```
cgtggtatat acatacacgt cgttctttcc tcattttaag tcttcatttg tcatggagct
tagaagatta cagttgaata tcttaaactc tctttcttaa tcacatttt tgtacttatt
acactaatta aaaccagagt ttgggtaata atttttgttt ccttaatttt ccgaattatc
cgctaatttt ctactctaat tctctggata ttttaaataa tagtaataat ctgctgtcaa
aataagataa gaaaaagaca taaagctgat tatcttgtag aacgtgtggg gaatgaatct
aacggctgat atcactcaag tgttctttc caccttcctt ttacaacacc cacgtgtaat
gtcatacaaa gaagtcatta cgaccgttag atcaaagcca acaagatcca atcttaacgg
ctaagataaa ttactacacg gatcgccaac gtggcaatac gtggtatata catacacgtc
gttctttcct cattttaagC AAATCGTAAA CCGCCACAAA ACCGAAAAAA ACACTAATTG
TGCTTTCCCT TTAGATTCAT TTGTATTTTC TTTTGGAGCT TTTGAACAAT GGAGTCATCA
CAAGCAACGA CGAAGCCAAC GAGAGGAGCA GGAGGAAGGA AAGGTGGAGA TAGGAAGAAG
AGTGTTAGTA AATCTGTTAA AGCTGGTCTT CAATTTCCCG TTGGTCGTAT CGCTCGTTAC
TTGAAGAAAG GTCGGTACGC TCTCCGATAC GGTTCCGGTG CTCCGGTTTA CCTCGCCGCC
GTTCTCGAAT ACCTAGCCGC CGAGgtatat tcaatctcag atctcgttgc attttgaatc
gatttatttt gtgtatctat tagatctgtt taattttgaa gttctaatga attgaaccgg
tttggtttag GTACTTGAGC TAGCTGGGAA CGCAGCGAGA GATAATAAGA AGAACAGGAT
AAACCCTAGG CATCTATGTT TAGCGATAAG GAACGATGAG GAATTGGGGA GATTGCTTCA
TGGAGTTACT ATTGCTAGTG GTGGTGTTCT TCCAAACATT AATCCAGTTC TTCTTCCTAA
GAAATCAACA GCTTCTTCTT CTCAAGCGGA GAAAGCTTCT GCTACCAAAT CTCCTAAGAA
GGCTTGATAA AGAATAGTAT CGATGTTGCT TTTTGGTTAT ATTCGGATCT TAGATGAAGA
AGAAGAAGAA GAAGAAACAA CTTGTTTTTT GTTTTAGAGG ATTTGTGTAG GTATCTGAAA
TCTTCTTCTC TTTGTTTTGG TTTGTCTTAT GTAAAAACCA TGGGAAGATG ATTATGTTTG
TTAACGCAAT TTGTAATGGA AAATAATTAA GTTCTGGGAT TAGTaacttc atctgtctaa
ttaatttctg ggtttcgtac ttgttgattt aaacaattta ggtggattaa ttgaaatggt
tttggtatac acatggaaag attcagtaca gttaatgaca ttaattaaag tagataataa
tcacgaaaaa catgacatta attaagaaaa tgattgttca aattgggctt tgtttgggct
tagttgatag gcccgttaga atttatgttc ttggttcatc tacgagattc tggaaaaggg
gttttggttt tccggtgggg tttagaattt aaacaagacg cgatttcgaa tttcgttctt
gtagaatcaa attgtttggt ttcaatcttg gatttgcgat gatgaatttt ctggttcgat
```

FIG. 8 (G)

HTA8-G
```
cacacttaaa tctttctttg tttaataaaa agtataatca aaaatttgaa agagagaata
cgtttcatta ttttttttaa ataccatcat gagaggtggt atgaatatcc actatatttt
aactacaaat cttcttttga ataatttgca attttatgtg atataaattt ttagtaaaat
aattattttc caacaacaca agatttgaac gaattttgta aagatatcta aatataaatt
taacatgttg acccaaaaaa tgaagaatta taacaattta gaaaagccgg cccaacaaga
tccacaagag ctaaacaaaa tccggcccaa caataagtcc aaactttaaa agctctcccg
cacaattttc gagcatcccg ctctcgtttt caggtacttc cctctctgag ctagggtttt
AATTCGACGT CTCTCTTTTG TCTCTGTATC GATTTTCTCG CCGCGAATTT CGAATAGGTT
CTTCACCATA AGCTTGAGAT CTTATTTCTC TACTGTTCTT TGCTTCTTCT CTATCGgtta
attatcttct ttgatttcga cgacggatct ggaaattctg aaattttgtg aagctctttt
cttttttgttt ggtttctgta gATATGGCTG GTAAAGGTGG GAAAGGGCTT CTAGCTGCGA
AGACGACGGC AGCAGCTGCA AACAAAGACA GTGTTAAGAA GAAATCCATC TCTCGCTCTT
CTCGTGCTGG TATTCAGgta tccctcaaac cctagctcct tttttgagaa tcgagtggct
cggagtttga atgtgcgtta ggtttttttg attatgttca attgtgaatt gggaaccaga
tttgtatttc gttctgtgtt taatgcattt ttgggaaatt gcttcctctc tgatttctgg
aaatatgttt tactctgtgt ttcttcatta aagttacaat gtgtgcttga tactggactt
ttattgtctc tatgactcta tgccaagtag cattattttt ggtgtgtctc attttatgac
tgtgatatgg tagcttgcat gttctatacg gttgatacac acaagcttga tttctctgtg
tgcacttctt gtagttgcgt atgaagaaaa acagtgctat ctatctagat tctagagtaa
tttgtataca atagagtact accaattgat actgagcctt aatgggagca tctacttgtc
ctctctgtgt gtgtgttctg gaaatctaag ccaaacattg tcctgttatt gtcattagtt
tactttgggg attcttcctt gttaaagccg aattgtacat atcattgaat ccatgttact
tatatggctt attgctgcag tgtctttat tatgataatc acttgatacg ttgtaatatc
tatctataag atgtagtaag tgaatgatca agcaaattaa aggactgtgt ggttagttta
agtgtcttat taatatatat ctatctacaa gaagatctgt ctcagtctga ttaatgggaa
gcctttctct gtgccctaaa gttatgtgct tattttgttt tctcaatgtg gtattctttc
agTTTCCAGT GGGTCGTATT CATCGTCAAC TCAAGCAAAG AGTTTCAGCA CATGGAAGAG
TTGGTGCCAC TGCTGCTGTT TACACTGCAT CAATTCTAGA ATACTTGACT GCTGAAGTAC
TCGAGTTAGC TGGAAATGCG AGCAAGGATC TCAAAGTGAA GAGAATTACA CCAAGACATT
TGCAGCTTGC AATCAGAGGA GATGAGGAAC TTGACACTCT CATCAAAGGA ACCATTGCAG
GAGGAGGTGT GATCCCTCAC ATCCACAAGT CCCTTGTCAA CAAAGTCACC AAGGATTGAG
TTTCGCTCTC TGAGTCCTAA GTCTCTATTA TACTATGTGC TCTTTTCTAG ACGCCCTCAT
GTGTATATGG GTTCATTGTA TCTCTTAGGT CTCTCGTTTT AGACTCATAC TCTTGTTATT
TTGCTAATGC TTACATGATT GAGGatgatg gttcttgctt tcttggtttc ctatactgtt
gcatgcccct cttctagcta accccggaca atagaaatcc tcgattagat gatgaaaacc
attcaacatc tatgtagcaa ctgatgacaa cagcgtttga ttgtttcaca a
```

FIG. 8 (H)

HTA9-G
```
ttagggacga atttgtgatt tatgattatt tgactttaga ttgggcttgg gctttttttcg
caggttgggg tataagggta aaatcgtcat ttgacagacc gacttgtctc tctctatctg
gggaaaacgt cttttcacat caacaaagaa ggaaaaaccg cagagaaacc atctgatact
taagctaaac tgagcgtaca aaaagcctct atatgtctta gttcatgatt tgctatgttt
tgtttccaga ctgaatgatt atacagagaa aacaaacaaa gatctccctc tcttcttttg
aatcaaaaca tgggtgttaa aatttaatag ttttctttca agtgtctttt tcaatattga
actaaattta gggacgaatt tgtgatttat gattatttga ctttagattg ggcttgggct
tttttcgcag gttggggtat aagggtaaaa tcgtcatttg acagaccgac ttgtctctct
ctatctgggg aaaacgtctA TCGGGAGACT CCTCTTCGAG CTCATCTTCT TCTCTCTCTT
TTTATCTTTG GTTGTGCGAT CTCCTTTCTC TTTCAATCTC CAAGGATTTT ACTGTGAGAT
ATTTGGCGGG AAAATGTCGG GGAAAGGTGC TAAAGGTTTG ATTATGGGGA AACCCAGCGG
TAGCGACAAG GATAAGGACA AGAAGAAGCC TATCACTCGT TCTTCTCGAG CTGGTCTCCA
Ggtagattat aatctccctc acactctaag tcttccgtgt ctgtttcttt gggaatcgaa
atggtcttat acacctgaac gattagtaga tcgcgtttaa gtggtagatc gatgagattc
tgagctagat ttggtaattt cagctgagaa ttagagacat tgggatgcga gatttggttt
tctattgtgt tatctgctgg agaattgttt cattaagctt ttatggttga tattgaaccc
gatctttgat ttcacggagt cttgttgtta cagctacctt gtgaattgaa ttcggagttt
tttttgtaga gatttattgt catatatgaa atgtttctgg gagcaattga gatttgagta
ttcatttagg ttccattgtt gtggctaatt gaatttacat tgtgtgcagT TCCCAGTTGG
TAGGGTGCAT CGTCTGTTAA AGACAAGGTC CACTGCTCAT GGAAGGGTTG GAGCAACTGC
AGCTGTTTAC ACAGCAGCAA TATTGGAGTA TCTGACTGCA GAAGTTTTGG AGTTGGCTGG
TAACGCCAGC AAGGACTTGA AGGTGAAACG TATCTCGCCG AGGCATTTGC AGCTTGCGAT
TCGTGGAGAT GAGGAGCTCG ATACTCTCAT CAAAGGAACT ATAGCTGGTG GTGGAGTCAT
CCCTCATATC CACAAGAGTC TCATCAACAA ATCCGCCAAG GAATAGGACT TTTTTAGTTA
CCCGCTTTGT TCTGTGTTGC TTTTCTGTTT TCTAAATGTT TTTAAGAGTT GTTGTTTGAT
AAGATGCTAG AGAAGCTCTT TTTAGGATCG TTTGCTATTG TTCGTTCGAT CAGCGTACTT
TGTGTTAGAG ACGCCAGTCG ATTTATCTAT CTTTAAAAAT GTATTCGAAT GATTATCCAA
AAACCATTTC TGActaccta ccttgctggt ttgttcgctg gagaagcttg aaagcaaatt
cattgggaag gatttgtatt atctctaaat agaattcata tatacatcat acataagtaa
aaatcacagg tttgtgttta agaaaattag gctgataata ttcacttggc ctagttgacg
tcgatgtgat tctgaagcaa agttctttgt agcaaatctg gtgggagttt taatcccttt
aagaatacac tgatgcctga ttt
```

HTA10-G
```
attcgaatta tgaaaatcaa aaaggaatga agcgggaaca aaaccttggg gatttagttt
gaatcgtgat gaagaaggaa gatcagagct tgagggagat tcgaaatttc ctcgcttcat
aacaaaatct gagaaataga tttgaaaaac agacaacact aggttacaaa aactgttact
cgatgaataa aaaaagagga cttttttcaaa tcttcacaca caaatttcac aaagaacccg
gattcaattt ttgaaaattg ggctctttgg taaaatgtaa aacgtttggg ccgaaaaaag
aagaaaaaaa caaaactgta aagaggcaaa gaggatattt tggtaattca ctctgacgcg
gatcctgaat ctcgaattat tcaccgttga ttataacatt atctaacggt gataaacagc
gatccgcgta gtttcttctt attggttaag acgaatctaa aacagtatat aaactctgga
gaagatggag agagtccatA ACAACAAATT CGATTCTTAT AACTGTTTCC CTCTCATCTT
TACACAAAAG TATTCTAATC GATTTCAATG GCGGGTCGTG GTAAAACACT CGGATCTGGG
TCTGCGAAGA AGGCAACAAC AAGAAGCAGC AAAGCCGGTC TCCAATTCCC TGTGGGTCGT
ATCGCTCGTT TCTTGAAGAA AGGCAAATAC GCCGAACGTG TTGGTGCCGG AGCTCCGGTT
TACTTAGCCG CCGTTCTCGA ATACCTCGCC GCTGAGgtaa ttcctcttcc ctattcttca
aattttcgat cttttagttc aatttctata aaccctaatt ttgactgatt ttggggaaat
tttgaaaaat tagGTATTGG AATTGGCTGG AAACGCAGCG AGGGATAACA AGAAGACGAG
GATTGTTCCA AGGCATATTC AATTGGCGGT GAGGAACGAT GAAGAATTGA GCAAATTGCT
TGGAGATGTG ACTATTGCTA ATGGAGGTGT GATGCCTAAC ATTCACAATC TTCTTCTTCC
TAAGAAGACC GGTGCTTCCA AGCCATCTGC TGAAGACGAT TGATTAATCA ACCAAATCCA
CTCTCTTGTG TTTTTTGAGT TTTTAAGGCT TTTTAAGAGT AATTTAGATT AGATCTATGG
TGAAGAAAGA ATCTATCTTC TGTGTTTTTT GAATTGAATT GAATGTTCAT ATGCTTTCAA
TTTCTTATGG AATCAAGATT TTAACTTTTC Taggttttcg agttatgatg atgaaattct
tagtcttata aatcactaaa gacttgggat ttttgattgg ttgacataaa gaatggactt
ttgagttaaa tttgggaaag ctactgggaa tgacatcatg agaggtgtat aattgagcaa
ctatgacata tattaaaaga gatctgaagg attgatgatg attggtgggc caataatg
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FIG. 8 (J)

HTA11-G
```
tcttaacaat caaaccaaag catataatat tctcttacca tttagttttta ccacaagcat
agtgcctaca acctttctca tgaaaaatgg atctttctgt tacaaaagaa aaaaaaaagc
tgattttaaa cgtttctaag aaatagaggg cttaatggca aaatgttgaa acattttaag
gctccaaagc gaaaaattta accgccaaag cgtaggtttc cccccaagat tttgaaaata
tttaaaaact cccaccaaac tttttaattt taaaactcta atcccattct attcaaccag
atttcgtttc tttcgtcctt tttttCCTTT TGCATTCTCT CGTCGTCGTC TCAAGgtact
ttacttctct ttttctctct tccaatattc gagatctgtt tctgtctttc ttggatcgat
tctcgattct gttcttcgat ttagtcttct ttcgaataga tctggtagat ttaagcatta
tactcttctt tttctgattt cgtttttgtt tgactgtgta cggttagATC TAGAAGAAGG
AAACAACAAT TTCAAGAGAC ATGGCAGGCA AAGGTGGAAA AGGACTCGTA GCTGCGAAGA
CGATGGCTGC TAACAAGGAC AAAGACAAGG ACAAGAAGAA ACCCATCTCT CGCTCTGCTC
GTGCTGGTAT TCAGgtcatc tcttaaaccc taatttcgac gaccttgttt gactctgatt
ctttcctaat tcatcagtac catttacatt tttaggaata gatttgtttt tttggttcta
tgtaaaagca tgaggaagta aacttgctgg atatgtgtaa tttcttttac tcggtaccat
gttgatgttt ttgtcaatgt ttgtgctaat tatacaaatt tgtgttgctt gctcactggt
tgcttggtca tctgagaata catgttgttg ttgttttgt ctcccattg tttaggtagt
gtcttatggt atgtgcccaa atgttccctt actctgtagc ttactattga tattgatgag
tcatgagggt tttaatatgt tttgtttggt tctagtatgt gcaatgttct gtttttatt
aagttatact attttaatgg aactatttgg tgtgcgctga tactgttttg acattgatgc
tgtgcatagc catacaagta gagagattgg tcacaccgat actgtttttt tttttcagTT
TCCAGTTGGA CGAATTCACA GGCAACTGAA GACCCGAGTC TCGGCACATG GCAGAGTTGG
TGCCACTGCA GCCGTCTACA CAGCTTCAAT CCTGGAGTAT CTGACAGCAG AGGTTCTTGA
GTTGGCTGGG AATGCGAGCA AGGATCTCAA AGTGAAGAGG ATAACGCCAA GGCATCTGCA
GTTGGCGATT AGAGGAGATG AGGAGCTGGA CACACTCAACAAA ACCACCAAGG AGTGATGTGT
AGCTTTTTAT GGTGTTTGTA TTTCTGTAGT CTTGGACTCA TTTTCCTTTA TCCTTTTCTT
AGTTCTTTGA CTAGTGTTGA CCTCTTCTGG ACATCCTCAG GTGTACATTA GTTAATTTGA
ACTCTTTAGG TTCCTTgttc aatcatatgt tctctttcta tgctattgtg atttgcttat
tatgttttca agtgaaccgt tttctgtttt aaacaactga ggaaatcatt tactcgcatg
ctctctggta accggactta caagtatctt ttagatatag aacttgttat caaacatcat
cagtatttta tcaagtcaca tattccaaat caggcgcaaa tagcccaatc acaagtcaaa
gactcaatat taaaaaaaaa agagtacatc attcattcac t
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FIG. 8 (K)

HTA12-G
```
gatttagtgt ccaatagaaa gcatccaagt ttttgccaaa aaaaaagaaa gaaagcatcc
aagcaataca tataagtttc atttgcatta tattcaacag taccattttc atatcttgtt
tcaaaaaata catcaaatta ttttccaaac cttcacatat aatttgagaa gaaatattac
aaatttaata taggttcagc ataatttaga aaatattatt caatgtttaa aacttctcct
aaattttgga gtattgctat taatcctttt aatgtgaaca aaacattgaa gcgaaggttg
ccagatcagc aaatcatagc cgttgattca cttccaatcc aaaagctaac attcatcaac
tgacaaaacc aaccaaccaa ccaacttctt tcgctatctt acgccaaagc tctcttaatt
cctccgtttg catattttcc ggtcagatca aaatcagaat cagaatcaaa tttctcgtcg
tgtcggagta aatcaagccA TGGATTCCGG AACCAAAGTG AAGAAAGGAG CCGCTGGAAG
AAGAAGTGGT GGAGGTCCTA AGAAGAAACC GGTTTCCCGT TCGGTTAAAT CCGGTCTACA
GTTTCCTGTC GGTAGGATCG GTCGGTATCT TAAGAAAGGT CGTTATTCGA AGCGTGTCGG
AACCGGAGCT CCGGTCTATC TCGCCGCCGT CCTCGAGTAT CTTGCTGCTG AGgtaataaa
gttctgaatt cagatcagct aatcatttca tcggaattat cgcagtttca tcgatttcac
tagaattctt gtgggttttg ttctgttgct tcgttgacca tctataggtg tagaatgtct
tcttctgatt ttagggtaaa ttgataatca tctgaggttg taaaattgaa tttgttagat
actatatcac gagtagatca acctcaagac atggtttcac tttcaattag gtttaacatc
tttgctttgc aaatctcaaa atcttagata gagatatatt agcgttacat aaaaactaaa
gttgcatagt caataaaacc taaataaaac atctgcaagt aaacttcatt gagaatctat
catcatgtaa caccgttttg agaatctgaa taccttggac tgatgtgcat gttacatgta
actcttgtca acaaatctct gagtaactag gatatgcaaa tattgcatac taatcttttt
gatcgaatgt gacaaaaccc cattttaaag tttacaagtc tgatccgtta tatatatgtt
gtcgatttag GTTCTCGAGC TTGCTGGTAA CGCTGCAAGA GATAACAAAA AGAACCGTAT
TATACCACGC CATGTTCTAT TAGCGGTGAG GAACGACGAG GAGCTAGGGA CACTACTCAA
AGGCGTAACC ATTGCACACG GCGGTGTTTT ACCAAACATA AACCCAATAC TCCTCCCAAA
GAAGTCTGAG AAAGCAGCTT CAACTACAAA AACACCCAAA TCACCATCAA AGGCAACCAA
ATCCCCTAAG AAATCTTAGT ACTTCTTTCT TCATTCCTCT GTATAACCTA CTGTTTCTAT
CTCTCTGTAC GTTTCTCTGT AAAGACAGAA CAGAATATCT CTTTGTTGTT GTGAGAAAGC
TTAGTTTCTC TGATCGTCGT TGTGAAATAA AAAATGCAAC GTTTCATATa gattttgcac
aatcaaaaag tattcatata aacaatgtat tattattcga ctatcatcat atg
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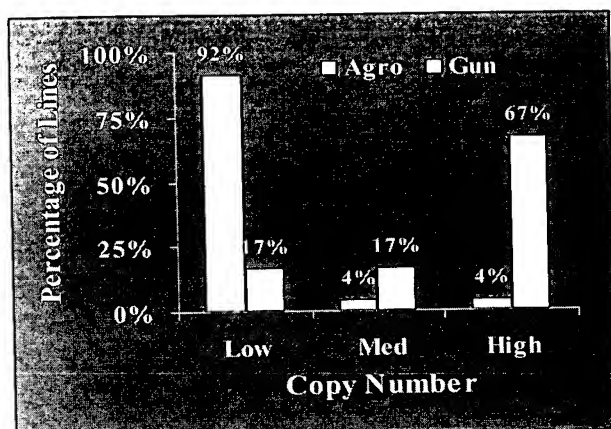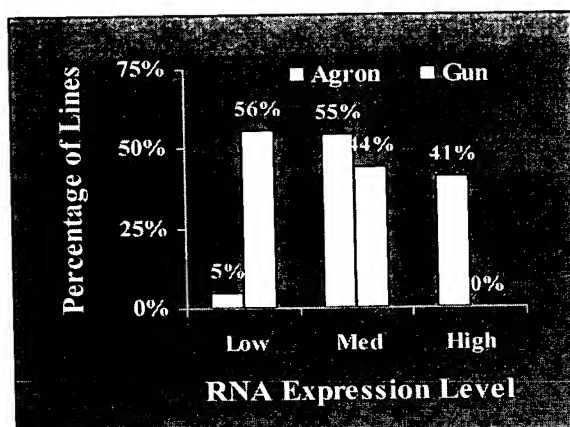
FIG. 8 (L)

HTA13-G
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taaaagtaag attttcataa attttaaaat tattcataac attcactaaa attagatgtg
tataattaac aaactaaaaa tatcattaat ctactatttt agtagttatt ttgcgaaaat
atgtttgagt tacaaaatat tttcactatt taaatcatgt cgattatacc cactgaaggg
tatttccgtc aatcccaatt ctaacaatga attcaggagt ataaaaacgt aaattcaagc
gtgccaatta taaaccgtcg atcataatct aatccaacgg cagtaacatc gatccgcgtg
attgtttatt attggataag aatcactcaa ccgtctctac acagtatata taataaccaa
agagcgtcct cttacgcttA TCTTAATTTC CCTCGCATTG AGAATTTTCA ACTTTTTCTA
TCTCTCTTCC CAAATCACAA ATGGCGGGTC GCGGCAAAAC TCTCGGATCT GGCGTTGCTA
AGAAATCAAC ATCGAGAAGC AGCAAAGCCG GTCTCCAATT CCCCGTTGGT CGTATCGCTC
GTTTTCTAAA GAACGGCAAG TACGCAACAC GTGTTGGTGC CGGAGCTCCG GTTTACTTAG
CCGCCGTTCT CGAATACCTC GCCGCTGAGg taattatccc cttctctccc tatatctctt
tactctttcg atcttcaatt tcgtaaaacc ctaatttcta aattggatct gttgtgttgt
agGTATTGGA ATTGGCTGGA AACGCAGCTA GGGATAACAA GAAGACTAGG ATTGTGCCAC
GTCACATTCA GCTCGCGGTG AGAAACGATG AGGAGCTGAG TAAACTGCTT GGAGATGTGA
CGATTGCTAA TGGAGGTGTG ATGCCTAACA TTCACAGTCT TCTTCTTCCC AAGAAAGCTG
GTGCTTCAAA ACCTTCCGCT GATGAAGATT AGATTAGGGA TTTGTGTTGT GGTTGTTTAG
CTAATTAATG TGTAGCTTAG TCTTTCATTA GATTAGATCT GAATTAGTTT TCATTAATGG
TGTTGTGTAG TCTCTCTTTT GCTTCAAAAA CAAGTATTAA AATCttatta ttttgaattg
aatccacaat caatacacat tgaagtccta acaaactact tcttcccagt gatatttgaa
accaaatcac taagaaactt agctgatttg gtaataggag aattcatagc catcaagtta
tacagaacaa gctcaacttc ttcgattgat ggtcgagaat tgaattgtga aacaactttc
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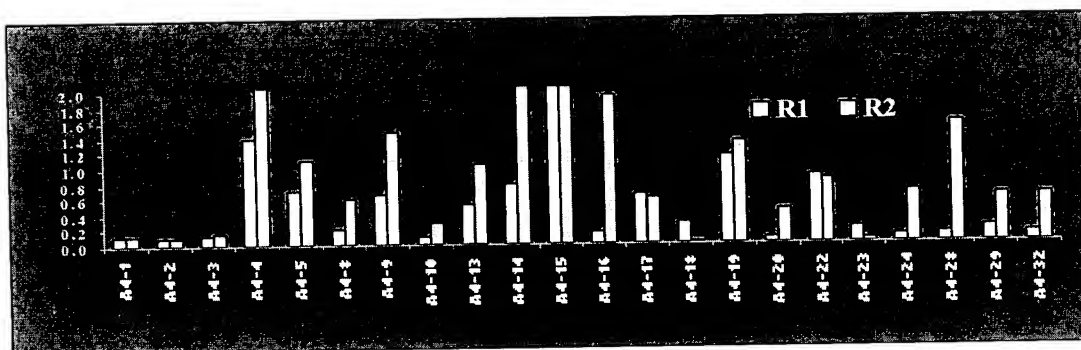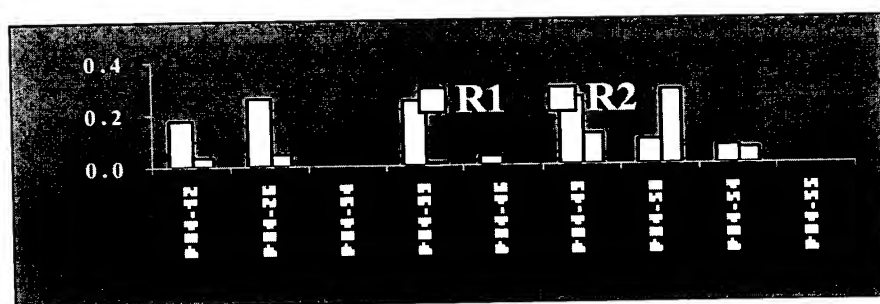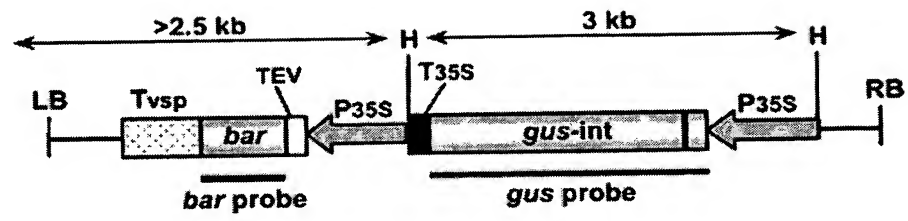
FIG. 8 (M)

FIG. 9

FIG. 10